forming an opening **140** in the left opaque and conductive layers **136** and **134** for allowing light (not shown) to reach the array of optoelectronic devices **102**. Thus, completing the electronic assembly with EMI protection. Note that light shielding is provided by the left opaque layer **136** and EMI protection is provided by the left conductive layer **134** and the transparent conductive layer **130**.

[0026] FIG. **2** illustrates another exemplary embodiment of an electronic assembly for an image sensor device according to the invention, in which elements in FIG. **2** that are the same as in FIGS. **1**A to **1**H are labeled the same and not described further again for brevity. Unlike the embodiment of FIG. **1**H, the conductive layer **134** is electrically connected to at least one grounding ball **118***b* by directly contacting at least one grounding pad **116***c*. In this embodiment, the grounding pad **116***c* is disposed on a rear surface of the device substrate **100** and extends to the sidewall of device substrate **100** to contact the conductive layer **134**. The rear surface of device substrate **100** has a surface opposite to a front surface of device substrate **100**, wherein a micro-lens array **104** is formed thereon and a dam portion **160***a* of a transparent substrate **160** is attached thereon. Accordingly, the conductive layer **101** and the grounding plug **114***b* as shown in FIG. **1**H, are no longer required according to this embodiment. Also, the grounding pad **116***c* is insulated from the device substrate **100** and the array of optoelectronic devices **102**.

[0027] FIG. **3** illustrates yet another exemplary embodiment of an electronic assembly for an image sensor device according to the invention, in which elements in FIG. **3** that are the same as in FIGS. **1**A to **1**H are labeled the same and not described further again for brevity. In particular, in this embodiment, a permeability layer **134***a* is utilized instead of the conductive layer **134** and the transparent conductive layer **130**, as shown in the embodiments of FIGS. **1**H and **2** for EMI protection. Accordingly, the grounding plug **114***b* and the grounding pad **116***b* shown in FIG. **1**H or the grounding pad **116***c* shown in FIG. **2** are no longer required according to this embodiment.

[0028] According to the aforementioned embodiments, the conductive layer **134** or a permeability layer **134***a* can be utilized for EMI protection. Compared to utilizing a metal housing for EMI protection, the size and weight of the electronic assembly can be reduced. Moreover, since the electronic assembly can be fabricated without forming an additional housing or cover for EMI protection, manufacturing cost can be reduced.

[0029] While the invention has been described by way of example and in terms of preferred embodiment, it is to be understood that the invention is not limited thereto. To the contrary, it is intended to cover various modifications and similar arrangements (as would be apparent to those skilled in the art). Therefore, the scope of the appended claims should be accorded the broadest interpretation so as to encompass all such modifications and similar arrangements.

What is claimed is:

1. An electronic assembly for an image sensor device, comprising:

a package module, comprising,

a device substrate comprising an array of optoelectronic devices and at least one grounding plug therein, wherein the grounding plug is insulated from the device substrate and the array of optoelectronic devices,

a transparent substrate comprising a dam portion attached to the device substrate to form a cavity between the device and transparent substrates, and

a micro-lens array disposed on the device substrate and within the cavity;

a lens set, mounted on the package module; and

a first conductive layer, electrically connected to the grounding plug, and covering the sidewalls of the lens set and the package module and the upper surface of the lens set, having an opening allowing light to reach the array of optoelectronic devices.

2. The electronic assembly as claimed in claim **1**, further comprising an opaque layer covering the first conductive layer.

3. The electronic assembly as claimed in claim **1**, further comprising a transparent conductive layer disposed on the upper surface of the lens set and covered by the first conductive layer.

4. The electronic assembly as claimed in claim **3**, wherein the transparent conductive layer comprises indium tin oxide.

5. The electronic assembly as claimed in claim **1**, further comprising a second conductive layer disposed between the transparent and device substrates and electrically connected between the first conductive layer and the grounding plug.

6. The electronic assembly as claimed in claim **5**, wherein the first and second conductive layers comprise metal.

7. The electronic assembly as claimed in claim **1**, wherein the device substrate further comprises:

an array of plugs, disposed in and insulated from the device substrate and electrically connected to the array of optoelectronic devices;

a ball grid array, correspondingly disposed on the array of plugs; and

at least one grounding ball, correspondingly disposed on the grounding plug.

8. An electronic assembly for an image sensor device, comprising:

a package module, comprising,

a device substrate, having front and rear surfaces, and comprising an array of optoelectronic devices therein and at least one grounding pad disposed on the rear surface of the device substrate and extending to the sidewall of the device substrate, wherein the grounding pad is insulated from the device substrate and the array of optoelectronic devices;

a transparent substrate, comprising a dam portion attached to the front surface of the device substrate to form a cavity between the device and transparent substrates, and

a micro-lens array, disposed on the front surface of the device substrate and within the cavity;

a lens set mounted on the package module; and

a conductive layer, covering the sidewall and the upper surface of the lens set and extending to the sidewall of the device substrate to contact the grounding pad, having an opening allowing light to reach the array of optoelectronic devices.

9. The electronic assembly as claimed in claim **8**, further comprising an opaque layer covering the conductive layer.

10. The electronic assembly as claimed in claim **8**, further comprising a transparent conductive layer disposed on the upper surface of the lens set and covered by the conductive layer.